

*Connection Points: the Importance of Aesthetic in Quality of Life*

**An Honors Thesis (HONR 499)**

**by**

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## **Abstract**

This paper is ultimately about the importance of aesthetic in regards to quality of life. The world can be mentally and physically overwhelming at times, and it's important for people to 1) have the power to change their surroundings and quality of life, and 2) have a sanctuary where they can find a reprieve. Beauty for beauty's sake does have merit. As a designer, one has a responsibility to make space as comfortable as possible. For this project, I have translated this thinking into physical designs and implemented them in my own private living space. This paper details my thoughts on this matter, the processes and stages of project design, as well as the implementation of said designs into my living space.

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## Acknowledgments

Thanks to Ana de Brea for being my advisor and for all that I learned in her ARCH 302 class. Thanks to Elise Miller (and other CAP FabLab employees) for volunteering their time when I needed to laser cut at awkward hours. Thank you to Professor San Miguel for his academic influence on my design sensibilities. Thank you to all the people who gave me critical feedback. Thanks to my family, because you're not supposed to leave them out. And you're welcome to Art Mart, who made bank off me purchasing all their Strathmore 24" x 19" Bristol pads.

## Author's Statement

Aesthetic does a lot to enhance quality of life for people. And it's something that can be easily added to the built environment. In an effort by people to raise the quality of their environment we see individuals take it upon themselves to beautify space. This gives rise to ad hoc measures such as graffiti, art installations, decorative plantings, etc., but it should also be a designer's responsibility to ensure that a space is naturally imbued with beauty. As a designer, I want to make it possible for people to safely and easily alter the quality of their environment for the better.

I realize this gives rise to the question: what is beauty? However, that is a discussion this paper will not be answering. It is an eternal question that will never have an answer. Instead, and for the purpose of this project, I will illuminate my views on aesthetic. Please think of this project as a manifesto of my design sensibilities.

Beauty is an intangible factor that cannot be thoroughly quantified. The eyes of beholders are not equal, or always discerning, but there are datums that link different aesthetics together and can enhance or detract from the quality of a space or object. I am generally in line with the views of wabi sabi, a traditional Japanese principle of aesthetic, which I will summarize briefly. Traditional wabi sabi was seen as a conglomerate of four facets: simplicity, perishability, suggestion, and irregularity. These points were first put together and published by Buddhist monk Yoshida Kenko (1283-1350). This embodies a lot of contemporary notions on aesthetic such as minimalism, intrinsic beauty, visual anticipation over climax, and asymmetry. In the words of Leonardo da Vinci, "simplicity is the ultimate sophistication." Japanese design today, speaking generally, understands that modernity still needs humanity and design must anticipate change. My design sense has also been called "origami logic" due to the tactics (like folding) and Asian influences in many of my creative projects. Understand, while these thoughts

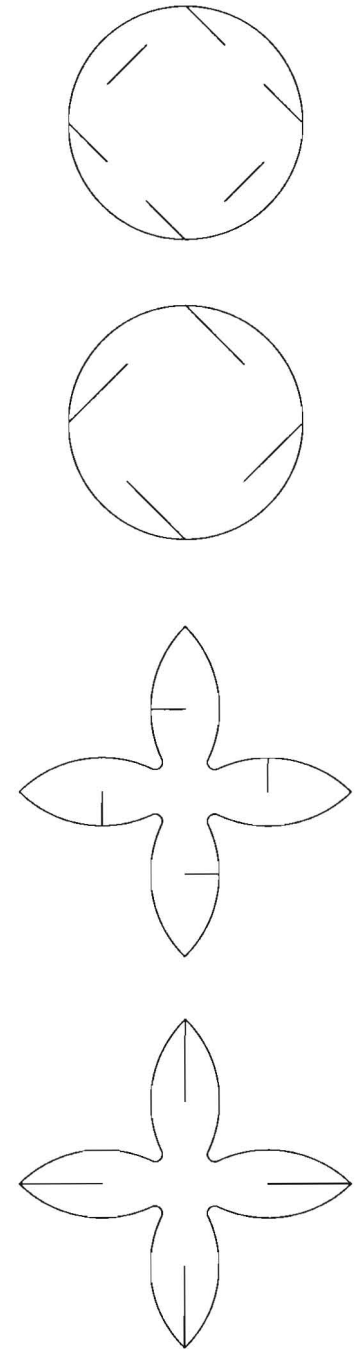


Figure 1.  
Four of the templates for this project. This set is a series of slot and tab connects whose shape is meant to mimic a traditional Japanese textile pattern.

align with my tastes, they are not exclusively my aesthetic viewpoint.

In order to create a pleasing environment, one has to be aware of their surroundings. I consider awareness and appreciation of the environment an ability that people do not utilize nearly enough. There are many benefits to living in the present moment. It's a relatively Buddhist concept (which in retrospect fits well with my somewhat Asian design principles, wabi sabi evolved out of Zen philosophy), though I am not religious, as a philosophy this line of thinking has many merits. I don't believe in a God, I think that death is the permanent end of our consciousness; but I don't see that as a bad thing. On the contrary, it makes the relatively brief time we have existing all the more special, something to be savored. As such, I think that it's a person's right to take advantage of all opportunities to be aware of their surroundings and live in the present as well as to do what they can to enhance the world we live in. At some unconscious level we understand the need for beauty, and that might be why we appreciate music and art, etc. In literature we've created comedy to deal with the absurd, satire, everything ranging from very high quality to crude slapstick. In art there are hundreds of different styles, methods, and materials that people use to try and capture what they see as beauty. Musical beauty is also something that is multifaceted and very dependent on the eye of the beholder. Such topics make me loop around to comedy and I will quote the satirical lyricist Bo Burnham and say, "maybe life on earth could be heaven, doesn't just the thought of it make it worth a try?" This is my motivation for doing everything I can to enhance the world's quality of life. Also, by being more aware of your surroundings you develop greater cognitive power when it comes to thinking and questioning, which make you a more informed member of society and a stronger agent of change.

Some might scoff at the merit of this project because it does not provide a base necessity such as food, shelter, or clothing. But I would say that beauty itself is not without function since it has an affect on our mental and emotional state. Having a sanctuary where one can go to find respite is increasingly important in a world that is getting bigger, busier, and faster everyday. For the average working individual, having a clean, pleasant space where they can

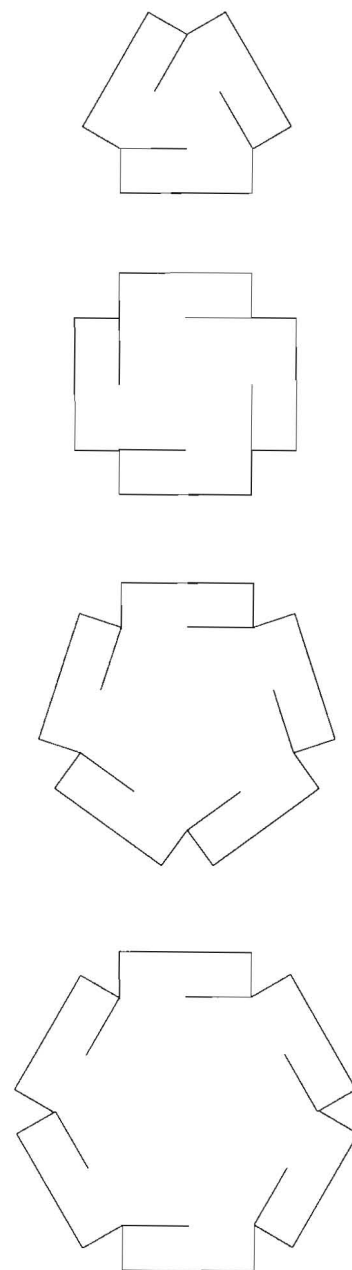


Figure 2.  
This series of geometric tiles share the same slot and tab connector and can therefore be used together for a variety of two dimensional or three dimensional patterns.



mentally unwind and find tranquility for even just a few minutes can improve physical and mental outlook and function. An individual who takes the initiative to alter the world around them also leaves an imprint of their tastes and has the benefit and comfort of being surrounded by their aesthetic.

For the “project” part of this capstone I am designing a series of tiles that can be used by individuals with no design experience to beautify their surroundings. I decided to work with modular tiles as a quasi-continuation from a project I did in third year architecture studio. I say “quasi” because the purpose of experimentation of each is different, but the aesthetic and prototyping material are similar. The purpose of the previous project was to create a flexible dermis that could wrap around multi dimensional objects. Beauty was less of a factor than functionality, and rather than being a two dimensional tile, the module was folded origami-style in a way that let it expand and contract in accordance with external force. This project is mostly about aesthetics, and giving individuals the power to create their own space. In addition, instead of ending at the design phase, I am creating a case study by fabricating the tiles and applying them to a real-life situation: my apartment. By using my tiles in a practical application, and living with the result for several days I can accurately judge whether or not the addition of these aesthetic sensibilities I consider beautiful improve the quality of my private space. I am also following up on my belief of having a sanctuary space where one can retreat.

Figures 1-3 show twelve of the templates used to create the tiles for this project. Some versions are better than others, and some I am even calling failed experiments, however, they are all included to illustrate points about the tiles and aesthetics.

I began my design process by contemplating my personal concepts of beauty and deciding on the type of style I wanted to create. In addition to wabi sabi being a Japanese-based concept, a significant influence on my design sensibilities was an abroad field study to Japan I participated in summer of 2013, lead by Professor San Miguel. As a nod to Japanese design, I decided to start by creating tiles that were based on traditional Japanese

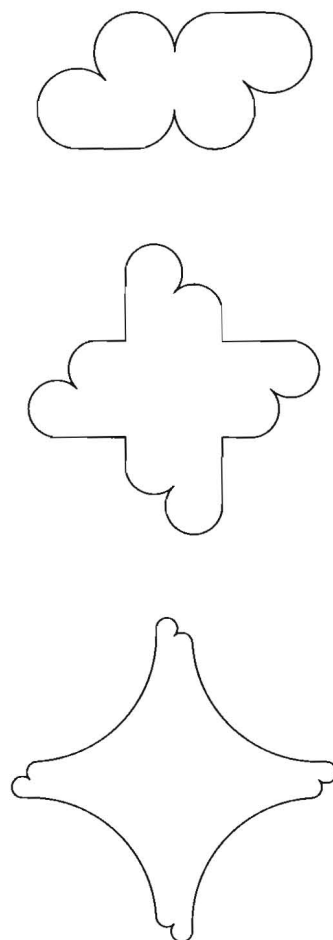


Figure 3.  
These tiles feature a circle-groove connection system. This method is special because it features no added cuts, instead what holds the tiles together is the shape inherent in them. The circle-groove method does not have as great of stability as the slot and tab method. This method works best when there is tension in only one direction (ex: a linear chain).

textile patterns. Figures 5, 10, and 18-20 were final tiles that resulted from this process. Figure 15 was also created from these iterations, but did not make it into the final tile designs.

Next I considered the importance of creating a series of different tiles that could either act individually or be paired together. When considering form it was obvious that the most efficient way of creating these tiles would be to have congruent edges. At first I thought that this would be a significant limiter to form; if the edges were the control then what was the variable? The resulting answer turned out to be quite elegant: the number of sides. What resulted from this was a series of geometric tiles that could all be interchanged with one another and easily create both three dimensional and two dimensional objects. The templates for these files are displayed in Figure 2. With each added size, the area of the tile grows, I only prototyped triangles, squares, pentagons, and hexagons, but theoretically one could fabricate any geometry with the number of sides ranging from three to infinity. The only necessary requirement to make these tiles function together is that the length of all their sides be congruent. Because this series of geometries alternates their number of sides between even and odd I had to resort to the most basic slot and tab connection method, but this is in no way a sacrifice considering it allows for the free connection of any geometric pairing one choses. The greatest aspect of these geometric tiles is that they are perfect for assembling multi dimensional objects. In Figures 11 and 12 one can see twelve pentagon tiles combined to form a dodecahedron. During the assembly process of the dodecahedron, after combining six of the tiles I had a semi-sphere that functioned as a relatively sturdy bowl for binder clips and other tools I had on my desk at the time. Also, people can choose whether or not they want the connection tabs oriented outside or inside of the geometry.

Another factor I wanted to further experiment with was the way in which the tiles connected. My favorite aspect of all the tiles is the various ways they connect. They come together without any additives such as glue, tape, pins, etc. It should be noted that the slot and tab method requires a slit (thus creating the slot and the tab) in the

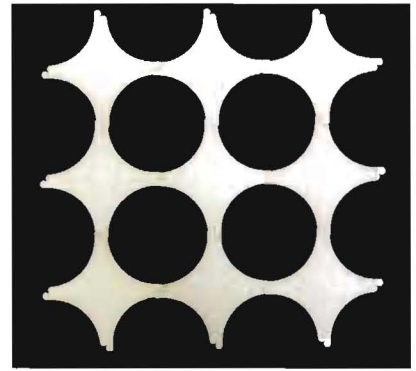


Figure 4.  
An assembled tile unit  
using the circle-groove  
connection

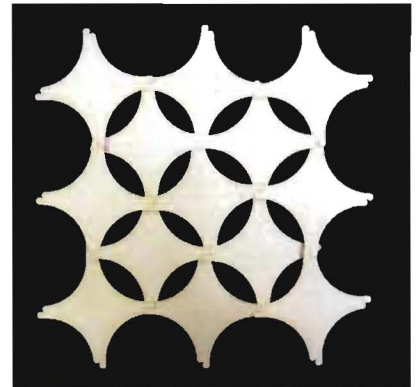


Figure 5.  
A composite of two of the  
same tile units woven  
together.

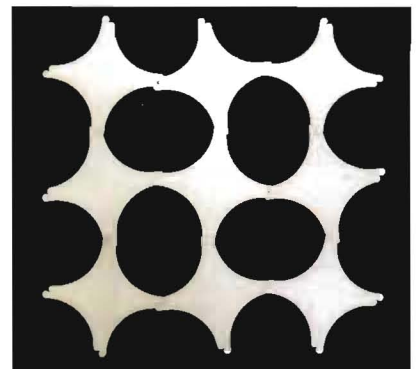


Figure 6.  
A example of how units flex,  
notice the circular gaps are  
no longer congruent.



tile, which is superfluous to the tiles' given shape. I would never say the slot and tab method is bad for this reason. In fact, because of the slot and tabs this form of connection creates more opportunities for individual users to customize their tile assemblies depending on how they orient and overlap the slots and tabs. Despite this appealing quality I still wanted to find a means of connection that did not rely on cutting the tile.

After numerous failed attempts I finally stumbled upon a form that worked: the shape of each connecting piece is formed by two circles placed diagonal to each other, the tiles fit together in the groove between the two circles and tension holds them in place. I call this new method the circle-groove method. The tab and slot connection points are certainly the most secure, however, I prefer the circle-groove connections because the way they come together is inherent in the shape of the tile and needs no additional splice like the slot and tab. Templates using this method are shown in Figure 3, and the resulting tile assemblies can be seen in Figures 4-9, 16, and 17. The only downside is that these connectors do not work well when they are multi-oriented (Figures 7 and 16), instead they are best when creating linear connections (Figures 8 and 9) and this limits their usability.

Part of the appeal of modular tiles is that they are easy for individuals to move and assemble, but having joints in the tile units also has other benefits. The connections create joints in the overall assemblage, which allow the units to shift when influenced by external forces. Movement of the tile units due to force is illustrated through Figures 6 and 17. This flexibility helps prevent damage to the tiles as well as allows the assembled piece to adjust to uneven surfaces.

Since many of the tiles connect through overlapping themselves, this gives rise to various visual effects depending on how they overlap. One side of a tile unit may look different from the other, or a pattern can be worked into the design by systematically alternating the lapping pattern. Creating a pattern is a relatively easy step to add into the assembly process, and allows the individual more creative freedom when making their product. Figure 20 shows a patterning option for its



Figure 7.

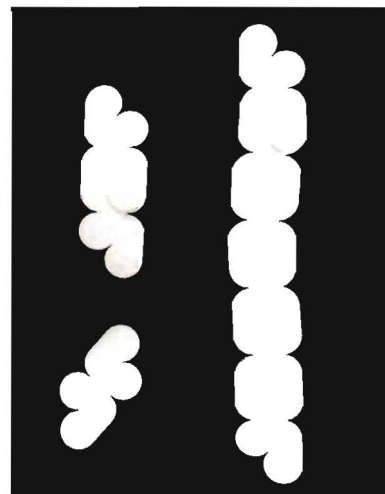


Figure 8.



Figure 9.

This is another tile connected with the circle-groove method. Though it can be assembled with connections in multiple orientations, it works best when put together linearly and held with vertical tension.



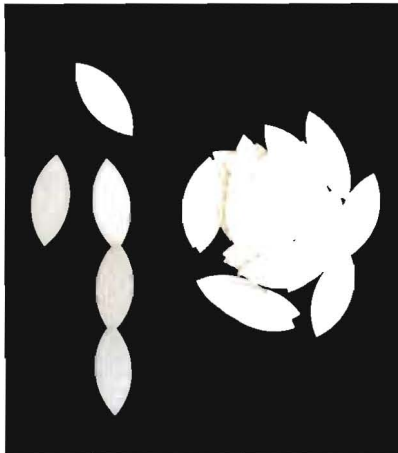


Figure 10.  
This tile was very simplistic in concept, this iteration failed because the scale of the slot and tab connector was too small in relation to the overall size of the tile.



Figure 13.



Figure 14.  
Particular three dimensional movement is inherent in the structure of certain tiles. These tiles create the most ridged form.



Figure 11.



Figure 12.  
Twelve petagon tiles assembled into a dodecahedron.



Figure 15.  
Though similar to the tiles in Figures 14 and 15, the different slot and tab connections here were too cumbersome.

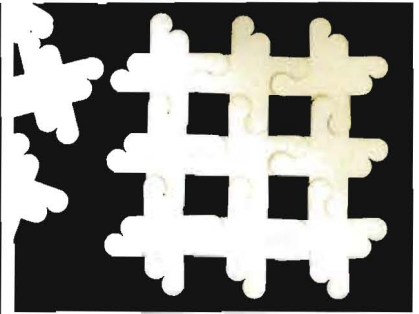


Figure 16.

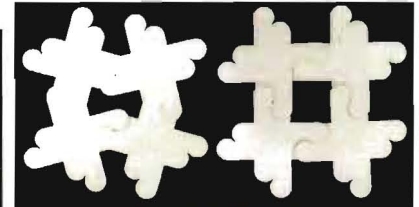


Figure 17.  
Tiles showing off their flexibility.



Figure 18.

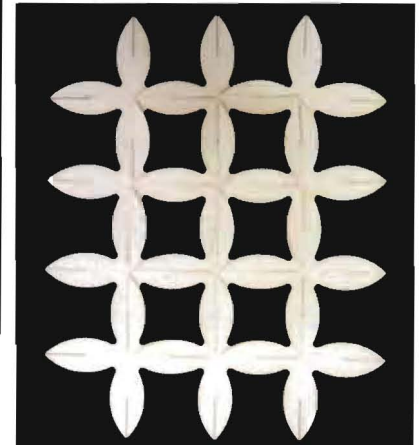


Figure 19.  
Tiles similar in shape, but different in link orientation.

respective tile, while Figure 14 shows the different sides that manifest through the connection of tiles. It is also possible for multiple tile units to weave in and out of each other. This technique is clearly evident in Figure 5, where two of the same tile units interlock. All of this is evidence of the versatility in form and style of these tile modules.

The structure of each individual tile module is imbued with inherent organizing principles that inform the unit's end shape. For example, out of the geometric paper set (Figure 2), the pentagonal tiles naturally form a dodecahedron. While assembling the tiles naturally began to curve and form a spherical shape.

An interesting visual experiment was altering the orientation of the tile connections within the same form. This could really only work with the slot and tab method. Figures 18 and 19 show two tiles of similar shape, however, one set has their connections oriented vertically, while the other is oriented horizontally. Surprisingly, it made a significant visual change to these two sets of tile units. One unit series looked more continuous while the other appeared fragmented.

The process of assembling the tiles into connected units was not tedious. Instead, the freedom to play with form and structure was rather fun. I would rank these tiles somewhere between Legos and puzzles in terms of the type of play they provide. It may be that in addition to marketing these tiles as decorative object they could also become children's building blocks.

There were, of course, many failures in the prototyping and form finding process. Certain shapes were too cumbersome (Figures 7-9), but mostly the problems were scale of connection points with regards to tile size (Figure 10), or faulty interlocking design (Figure 15). I was most disappointed in the failure of my first circle tile (Figure 15); I had designed the slot and tab connector a little differently, and though it was possible to assemble the tiles, the physical act of connecting them was a much more delicate and time-consuming process. In the end, the unit I had made appeared crumpled and ragged because of the struggle I had putting together the tiles.

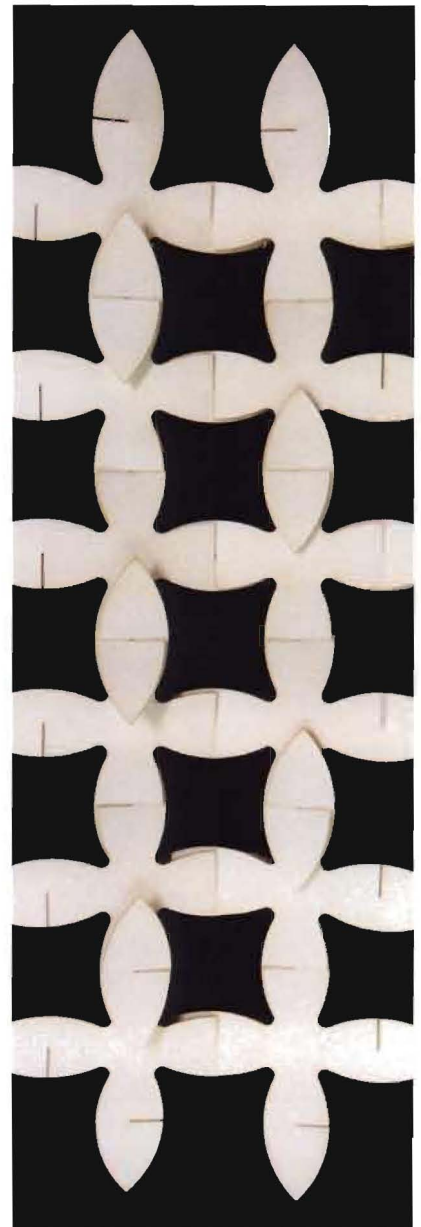


Figure 20.

This tile unit has alternated the overlapping of the slots and tabs to create a pattern within the assemblage. This is possible for this tile because the horizontal orientation of the links, but not for the tile unit in Fig. 19 that has the same shape but whose connectors are oriented vertically.



So, I think about my tiles, and how their purpose is for individuals to enhance the quality of their space. I think about the importance of having a personal sanctuary space. And then I think about myself, and what I do when I need to suspend reality and have a little “Zen” moment: I make tea. I love teas and have a little tea station in the corner of my apartment where I’ll go and sit and brew a mug or pot. Upon critical inspection it is not a spatially appealing spot, more like the leftovers of the room, and not a place that encourages one to relax. Additionally, it is right by the under-the-stairs storage area, where things are messy and cramped. I realized that this space was the perfect opportunity for me to manifest my thoughts on design. I decided to use it as a case study where my tile templates would be used to enhance the space.

What you see in Figures 21-23 and 28 is the aforementioned corner of my apartment with a tile assembly being used as a tapestry to conceal the storage area and provide an elegant and simple backdrop for my tea making station. Figures 21 and 22 were shot immediately post-installment. I used a tile that connects with a slot and tab method because at the end of the split there is room for a pin that secures the tiles to the wall while allowing them to flex and pivot. Although the hanging is relatively light, I used nails and found the studs in the wall to make sure the hanging was extra secure. Because of the vast amount of wall space that needed to be covered I reused already cut older tile templates from the aforementioned third year project (being almost two years old there are a few small tears but no major structural damage). There were enough leftover tiles that they could reach all the way from the ceiling to the floor, covering a fifty to sixty square foot area. Though I could easily have assembled and installed my new tiles, using that much more material to fabricating tiles that have the same visual effect seemed a poor waste of resources. Plenty of paper was already spent during the prototyping phase, and I wanted to be conscious of material conservation.

These paper tiles, though finalized in form and concept, are all prototypes with regards to materiality. Paper (my favorite material) is beautiful, clean, and simple, but has an unfortunate lack of durability compared to other materials. It serves well when making interior decoration

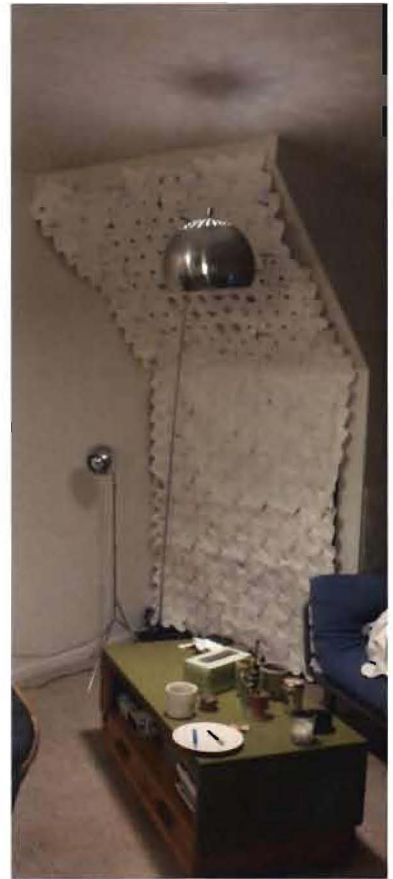


Figure 21.



Figure 22.  
Images of the tile unit case study immediately after installation.



such as wall hangings, lampshades, sculptural objects, etc., but cannot be used outdoors. For outdoor use I would fabricate the tiles in either an acrylic polymer or polycarbonate based material. For indoor use where the tile units are constantly being touched or moved (for example a door curtain or window shade) I would also switch out the material to a thick Mylar. For this case study, I did not create tiles in these materials because 1) it is not required for form prototyping, 2) the case study I was applying the tile unit to was not outdoors and did not require high durability, and 3) the cost would have been inhibitive due to the vast amount of wall that needed to be covered. Plus since paper is my preferred material when modeling crafts, I am asserting my individual power to alter the space around me how I please.

After living with the results of my project for a few days I consider my capstone a success. I was very pleased with the immediate effect my tile units had on the apartment, and that feeling did not diminish with the passage of time. In fact, the more I look at it the more I like it. The large papasan chair I sit



Figure 23.  
My chair in the living room has a direct view to the title unit.



Figure 24.



Figure 25.



Figure 26.



Figure 27.  
Making tea in the space.

at in my apartment looks directly at the hanging, so I get its maximum visual effect. Considering I was looking at the inside of a door-less closet before, this is a vast improvement. In one critique it was mentioned that using the storage area would become a hassle, but that ends up being a matter of program. The covered area is filled with boxes, suitcases, and packing material, which I should not need to access until I move out (at which point the hanging will need to be removed anyway). And there is the unexpected but happily accepted pride in assembling, and hanging the piece myself. There are also compliments from friends and guests, evidence of individuals appreciating art and beauty for the sake of beauty.

These tile units were designed based on my views of beauty and aesthetic. Their modular form is simple, clean, and versatile, and they succeed in making my sanctuary space more tranquil and inviting. I feel that this shows the merit of beauty and proves that aesthetic is a critical factor in enhancing an individual's quality of life. This case study was easy to assemble and install and is clearly an addition accessible to people outside of the design field. These tiles give people the power to alter their environment in a way that raises the quality of their space. I believe that these designs are worthy of becoming more than just an academic project and hope to realize that in the future.

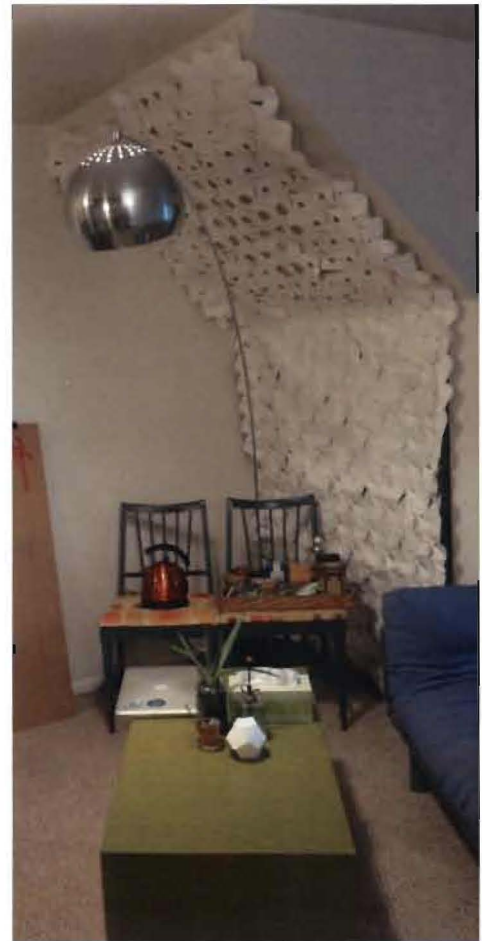


Figure 28.  
View directly facing my tea making station with the installed case study. A tile prototype sits on the coffee table.

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All images taken by Taylor Henderson